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## Net Zero Energy Buildings

### *Calculation Methodologies versus National Building Codes*

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## **“Low Cost & Low Tech” Plus Energy Primary School and Gymnasium**

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This project shall demonstrate that it is possible to realize a Plus Energy Primary School without increased costs in comparison to a “normal” new school building. The basic approach was to optimize the architectural design in order to permit a lean building with a simple, easy controllable and low maintenance engineering system. A sustainable, ecological concept can be implemented by using renewable sources. A photovoltaic plant will compensate the energy demand by feeding into the local grid. With the financial support by a project of the German Government (EnOB), different innovative components and products can be applied and monitored. The results of the different research areas will be documented and can be used for future projects.

## **Net Zero Energy Buildings - Calculation Methodologies versus National Building Codes**

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The International Energy Agency (IEA), through the Solar Heating and Cooling Programme (SHC) Task 40 and the Energy Conservation in Buildings and Community Systems Programme (ECBCS) Annex 52 [1], works towards developing a common understanding and setting up the basis for an international definition framework for Net Zero Energy Buildings (NZEBs). The understanding for such buildings and how the NZEB status should be calculated differs in each of the participating country. Within the task activities, the participants surveyed and compared the variables used for calculation and each country's national calculation methodologies. This paper first presents an overview of NZEBs energy calculation methodologies proposed by organisations representing eight different countries: Austria, Canada, Denmark, Germany, Italy, Norway, Switzerland and USA. The variables used in each methodology are reviewed and their relative importance assessed. The paper concludes with the results of a survey where each of the participating country were asked to compare their own NZEBs against each methodology.